Centre for
Heart Lung Innovation
UBC and St. Paul's Hospital

Centre for Heart Lung Innovation Research in Progress (R.I.P.)

Coronavirus papain-like protease (PLpro) disrupts cellular autophagy through cleavage of ULK1

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Monday Sept 14th, 2020
9:00 a.m. – 10:00 a.m.
Zoom Video Conference
details in body of email

"The recent COVID-19 pandemic alongside the 2004-SARS and 2012-MERS outbreaks underscore an urgent need to understand betacoronaviruses as a global health challenge. SARS-COV2 has infected 24-million individuals worldwide with a case fatality rate of 3.4%. While global efforts to restrict travel and practice social distancing have helped to mitigate a potential crisis, the pandemic remains an active threat. Autophagy-modulating drugs have emerged as potential therapeutic candidates against SARS-COV2 but recent clinical setbacks underscore a need for further investigation. We hypothesize that coronaviruses may utilize strategies to circumvent autophagy in favor of viral pathogenesis. Using murine-coronavirus (M-CoV) as a model betacoronavirus, we reveal that viral-encoded proteases target critical factors within autophagy, including the autophagy-initiating serine-threonine kinase (ULK1). We identified that SARS-COV2 papain-like protease cleaves ULK1 leading to disruption of autophagy. Studying how betacoronaviruses subvert the innate cellular defence of autophagy will help to guide future efforts to develop effective anti-viral therapy."

This event is a Self-Approved Group Learning Activity as defined by the Maintenance Certification Program of the Royal College of Physicians and Surgeons of Canada